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ABSTRACT

An assessment of conservation and environmental education needs in southern Appalachian schools is provided in this survey. Superintendents of school districts and teachers within the southern Appalachian region responded to a questionnaire which was designed to determine: (1) the current status of conservation and environmental education; (2) attitudes toward expanding the role of conservation and environmental education; and (3) levels of interest in learning more about specific regional conservation and environmental topics and methods for teaching about those topics. The survey results indicated that conservation and environmental education are a relatively low priority in current practice, but that respondents believe that a greater emphasis should be placed on such education in their schools and districts. The educators felt that a summer teacher institute would be valuable and expressed interest in learning more about a variety of environmental topics and teaching methods. In light of these findings, recommendations were made for one or more conservation and environmental education teacher institutes. The survey instrument and related correspondence are appended. (ML)

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CONSERVATION AND ENVIRONMENTAL EDUCATION IN SOUTHERN APPALACHIAN SCHOOLS

A Report of a Needs Assessment

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CONSERVATION AND ENVIRONMENTAL EDUCATION IN SOUTHERN APPALACHIAN SCHOOLS

A Report of a Needs Assessment

by
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June 24, 1986

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INTRODUCTION

Overview

In the winter and spring of 1986 the Appalachian Consortium and Warren Wilson College jointly conducted a conservation and environmental education needs assessment in the southern Appalachian region. As delineated by the Appalachian Consortium, Southern Appalachia consists of the mountainous portions of seven southeastern states (Figure 1).

The survey was intended to accomplish three related objectives. These objectives were to determine:

1. The present status of conservation and environmental education:
   a. the extent to which conservation and environmental education are currently included in southern Appalachian school curricula,
   b. the ways in which this material is presented,
   c. the level of support for conservation and environmental education.
2. Attitudes towards expanding the role of conservation and environmental education:
   a. the importance of a stronger conservation and environmental education curriculum in southern Appalachian schools,
   b. the perceived value of and interest in further teacher education about conservation and environmental education in the region.
3. Levels of interest in learning more about specific regional conservation and environmental topics and methods for teaching about those topics.

A four-page questionnaire was mailed to a random sample of superintendents of school districts within the region and to a random sample of teachers on the Appalachian Consortium's mailing list. Eventually, after the researchers mailed a follow-up letter to nonrespondents, 60.4% of the questionnaires were returned. Data analysis followed.

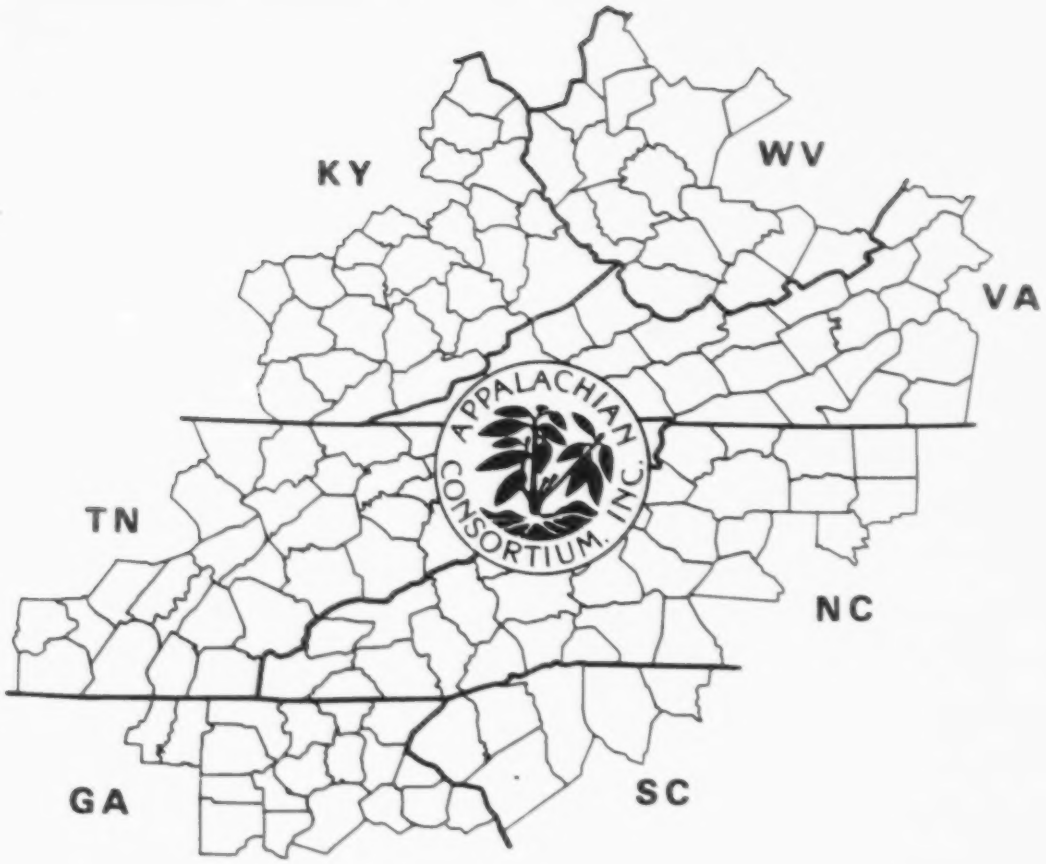

Figure 1

Southern Appalachia as Defined by the Appalachian Consortium

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Background of the Study

The Appalachian Consortium is a nonprofit educational organization dedicated to preserving the cultural heritage of Southern Appalachia. Founded in 1971 by a group of concerned citizens and educational leaders, the Consortium's primary objective has been to provide services to the region which would improve the quality of life, promote regional cooperation, and raise the pride of the Appalachian people in their traditions and the region in which they live (Appalachian Consortium, 1986).

During the last several years, the Consortium has expanded its efforts to work with public school teachers and administrators. The organization's first Southern Highlands Institute for Educators took place in 1984, funded by the National Endowment for the Humanities (NEH). With Appalachian studies as the focus, the program consisted of two-week institutes at East Tennessee State University, Appalachian State University, Western Carolina University, and Virginia Polytechnic Institute. The second institute, also supported by the NEH, deals with American literature. It involves a three-week session at Appalachian State University this summer, followed by one three-week session during each of the next three summers.

Although many of its projects have dealt with Appalachian folk traditions, the Consortium has also addressed the region's social, political and economic problems. To a significant degree, the region's traditions and problems stem from--and influence--the biological and physical environment of the Southern Appalachians. Sustainable regional development can only take place if the interrelationships between the area's environment and its people are taken into account.

Conservation education, rooted in the New Deal programs of the 1930's, and environmental education, which emerged from conservation education and related

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movements in the late 1960's, together represent an attempt to help citizens understand biophysical and sociocultural environments, become aware of environmental problems, and develop the motivation and the skills to work toward their solution (Roth, et al., 1980).

The Appalachian Consortium has recently placed greater emphasis upon the environmental dimensions of regional problems. A teacher institute focused on conservation and environmental education was identified as a possible Consortium project late in 1985.

Warren Wilson College, an institutional member of the Appalachian Consortium, began its Environmental Studies Program nearly ten years ago. Environmental education is available as a concentration within the environmental studies major, and the College is one of the Southeast's few institutions of higher education to offer such a program. In light of Warren Wilson's membership in the Appalachian Consortium, its own longstanding commitment to Appalachia, and its activities in environmental studies, it was decided that Warren Wilson and the Appalachian Consortium would begin this joint effort to assess conservation and environmental education needs in the region.

The two institutions undertook this study with the understanding that if significant needs and interests were demonstrated, the Consortium and Warren Wilson College would develop plans for a series of conservation and environmental education teacher institutes. These programs would follow the approach and format of the Consortium's Southern Highlands Institutes.

Organization of the Report

Four sections comprise this report. Following this introductory section is a description of the research procedures. Tables displaying results of the questionnaire analysis make up the next section. A concluding discussion closes the report.

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RESEARCH PROCEDURES

Sampling

A list of the region's school districts was compiled from Patterson's American Education (Moody, 1977). From the 211 districts identified, a random sample of 105 (49.8%) was selected for the study. The questionnaire, a cover letter and a stamped return envelope were sent to the superintendent of each of these 105 school districts. (The questionnaire appears in Appendix A, and the cover letter to superintendents appears in Appendix B.) Each superintendent was requested to ask an appropriate teacher or curriculum coordinator to complete the questionnaire and return it in the stamped and addressed envelope included with the questionnaire.

A second population was also sampled. This group was educators who had taken part in the Appalachian Consortium's past Southern Highlands Institute for Educators. From the Consortium's mailing list of 118 participants, a random sample of 59 (50.0%) was drawn. Each person selected received the questionnaire and a stamped return envelope in the mail.

Questionnaire Development

A draft of the Conservation and Environmental Education Questionnaire, cover letter and the research proposal were mailed to a seven-member review panel[1] for comments. Suggestions made in person, over the telephone and through the mail were eventually received from each panelist. In addition the draft questionnaire, cover letter and research proposal were examined and discussed at the winter meeting of the Appalachian Consortium's Committee on Regional Cooperation and Development.

Based upon these comments the Conservation and Environmental Education Questionnaire, cover letter and research strategy were finalized.

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[1] The review panel consisted of college faculty and staff members familiar with environmental education and the Appalachian region. Institutions represented on the panel were: Appalachian Consortium (2 members), Appalachian State University (1 member), Ohio State University (2 members), and Warren Wilson College (2 members).

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Research Schedule

The study involved several tasks that were carried out according to the schedule shown in Table 1.

Table 1

Timetable for Research Tasks
(All dates are in 1986)

Dates	Research Tasks
January 16	Discuss research project with Appalachian Consortium staff
February 11	Send draft research proposal to reviewers for comments
February 25	Reviewers' comments due
March 3	Mail follow-up letters to nonresponding reviewers
March 14	Discuss draft research proposal with members of the Appalachian Consortium's Regional Cooperation and Development Committee. Finalize questionnaire and research strategy.
March 19 - 20	Mail 164 questionnaires with cover letters and return envelopes
April 4	Due date for questionnaires
May 13	Mail follow-up letters with return envelopes and duplicate questionnaires to nonrespondents
May 24	Due date for nonrespondents' questionnaires
May 25 - June 16	Analyze data
June 19	Discuss preliminary results with Appalachian Consortium staff
June 20 - 24	Complete and print research report

Follow-up letters sent to school district superintendents and to consortium teachers appear in Appendix B.

Data were tabulated and analyzed using the StatView program (Feldman and Gagnon, 1985) and computer facilities at Warren Wilson College.

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ANALYSIS OF RESULTS

Return Rates

Teachers and curriculum coordinators contacted by superintendents to complete the Conservation and Environmental Education Questionnaire returned 70 of the 105 questionnaires sent to the superintendents--a response rate of 66.7%. Twenty-nine (49.2%) of the 59 teachers on the Appalachian Consortium list who were randomly selected for the study returned their questionnaires. Combining these numbers yields a total of 164 questionnaires mailed and 99 returned. This produces an overall response rate of 60.4% for the project.

Table 2 depicts the sample sizes and questionnaire return rates.

Table 2

Sample Sizes and Questionnaire Return Rates

	Consortium Teachers	School District Superintendents	Totals
Population Size	118	211	329
Sample Size (= Questionnaires Distributed)	59	105	164
Percent Sampled	50.0%	49.8%	49.8%
Questionnaires Returned	29	70	99
Percent Returned	49.2%	66.7%	60.4%
Insufficient Addresses	2	3	5

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Characteristics of Respondents

Tables 3 through 6 show the states of residence, occupations, years taught, grades taught, and subjects taught by the respondents. Columns in Tables 5 and 6 sum to more than 100%, reflecting the fact that many teachers have taught several subjects (this is, of course, true for virtually all elementary school teachers) at several different grade levels.

Table 3

States of Residence and Occupations of Respondents

	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Residence			
Georgia	0 (0.0%)	6 (8.6%)	6 (6.1%)
Kentucky	0 (0.0%)	13 (18.6%)	13 (13.1%)
North Carolina	14 (48.3%)	16 (22.9%)	30 (30.3%)
South Carolina	0 (0.0%)	5 (7.1%)	5 (5.1%)
Tennessee	6 (20.7%)	15 (21.4%)	21 (21.2%)
Virginia	7 (24.1%)	9 (12.9%)	16 (16.2%)
West Virginia	2 (6.9%)	6 (8.6%)	8 (8.1%)
Occupation			
Teacher	29 (100%)	34 (48.6%)	63 (63.6%)
Curriculum Supervisor	0 (0.0%)	20 (28.6%)	20 (20.2%)
Superintendent	0 (0.0%)	1 (1.4%)	1 (1.0%)
Not Possible to Determine	0 (0.0%)	15 (21.4%)	15 (15.2%)

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Table 4

Number of Years Taught

	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Minimum	4 years	3 years	3 years
Maximum	30	39	39
Mean	16.2	16.5	16.4
Standard Deviation	6.3	8.3	7.7
# of Cases	29	64	93
Missing Data	0	6	6

Table 5

Grade Levels Taught

Grade Levels	Consortium Teachers: N (%)	Superintendent Contacts: N (%)	All Respondents: N (%)
K - 3	11 (37.9)	15 (23.1)	26 (27.7)
4 - 6	15 (51.7)	23 (35.4)	38 (40.4)
6 - 9*	13 (44.8)	49 (75.3)	62 (66.0)
9 - 12**	9 (31.0)	40 (61.6)	49 (52.1)
Beyond 12	0 (0.0)	6 (9.3)	6 (6.1)
# of Cases	29	65	94
Missing Data	0	5	5

* Junior high and middle schools
** Senior high schools

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Table 6

Subjects Taught

Subjects	Consortium Teachers: N (%)	Superintendent Contacts: N (%)	All Respondents N (%)
Social Studies	24 (82.8)	28 (43.8)	52 (55.9)
Science	17 (58.6)	38 (59.4)	55 (59.1)
Language Arts	24 (82.8)	34 (53.1)	58 (62.4)
Mathematics	18 (62.1)	30 (46.9)	48 (51.6)
Vocational Education	2 (6.9)	5 (7.8)	7 (7.5)
Other	2 (6.9)	0 (0.0)	2 (2.1)
# of Cases	29	64	93
Missing Data	0	6	6

The respondent group appears to be heavily weighted towards North Carolina representatives. This characteristic is particularly true for the responding consortium teachers, 48.3% of whom teach in North Carolina.

Several differences between the consortium teachers and superintendent contacts are apparent in Tables 3 through 6. No curriculum supervisors are represented among the consortium teachers, while over one-fourth (28.6%) of the superintendent contacts were identified as curriculum supervisors. The superintendent contacts have nearly twice the length of teaching experience as the consortium teachers and are almost twice as likely to teach in middle or secondary schools. In contrast, social studies and language arts are much more frequently taught by the consortium teachers than they are by the superintendent contacts.

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Present Status of Conservation and Environmental Education

Depicted in Tables 7 through 13 are data which provide information regarding the present status of conservation and environmental education in southern Appalachian schools.

Table 7

Means and Standard Deviations for Question 3:
Extent to Which Topics Related to
Conservation and Environmental Education are Currently Taught
Scale: 1=Extensive 2=Moderate 3=Little 4=Not At All

	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Means	SD's	Cases	Means	SD's	Cases	Means	SD's	Cases
In their Classroom	2.6	0.7	29	2.2	0.7	49	2.4	0.7	78
In their School	2.4	0.7	29	2.3	0.7	48	2.3	0.7	77
In their District	2.5	0.6	29	2.2	0.7	57	2.3	0.7	86

Table 8

Hours per Week Spent on
Conservation and Environmental Education Instruction

	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Minimum	0 hours	0 hours	0 hours
Maximum	2	7.5	7.5
Mean	0.8	1.6	1.3
Standard Deviation	0.7	1.7	1.5
# of Cases	23	48	71
Missing Data	6	22	28

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Tables 7 and 8 both relate to the degree of prevalence of conservation and environmental education in the curriculum. The average time spent per week on this area (Table 7) is 1.3 hours--0.8 hours for the consortium teachers and 1.6 hours for the superintendent contacts. When asked to what extent topics related to conservation and environmental education were included in their classrooms, schools and districts, respondents' replies averaged between the "moderate" and "little" ratings (Table 8). Thus, the two data sets provide a complementary and consistent picture.

Environmental issues and peoples' relationship to the environment are the most popular general areas of conservation and environmental education covered, according to the summary presented in Table 9. However, the more traditional categories of nature study and conservation methods also receive a substantial amount of attention. Table 10 confirms the predominance of classroom instruction as a teaching method while revealing that many educators, especially the

Table 9

Areas of Conservation and Environmental Education Covered

	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Nature Study	18 (62.1%)	52 (75.4%)	70 (71.4%)
Conservation Methods	13 (44.8%)	51 (73.9%)	64 (65.3%)
Environmental Issues	21 (72.4%)	55 (79.7%)	76 (77.6%)
People's Relationship to the Env't	24 (82.8%)	53 (76.8%)	77 (78.6%)
Other	1 (3.4%)	5 (7.2%)	6 (6.1%)
# of Cases	29	69	98
Missing Data	0	1	1

Table 10

Methods Used to Present
Conservation and Environmental Education Material

Methods	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Classroom Instruction	24 (82.8%)	64 (92.8%)	88 (89.8%)
Field Trip	10 (34.5)	47 (68.1%)	57 (58.2%)
Laboratory	5 (17.2%)	24 (34.8%)	29 (29.6%)
School Site Study	8 (27.6%)	33 (47.8%)	41 (41.8%)
Other	10 (34.5%)	6 (8.7%)	16 (16.3%)
# of Cases	29	69	98
Missing Data	0	1	1

superintendent contacts, employ field trips and school site studies to teach about matters related to conservation and the environment.

Approximately half (48.9%) of the respondents, as shown in Table 11, have previously participated in some form of conservation or environmental education instructional session.

Table 11

Previous Participation in a
Conservation or Environmental Education Course or Workshop

Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
12 (42.9%)	33 (51.5%)	45 (48.9%)
# of Cases 28	64	92
Missing Data 1	6	7

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Table 12 reveals the level and sources of support for conservation and environmental education in the schools. The differences among the various individuals and groups (e.g., school boards, principals, fellow teachers) are slight, with all average ratings falling between "moderately" and "slightly". Nearly half of the respondents (48.5%) identified one or more factors preventing a stronger emphasis upon conservation and environmental education in their school districts. Table 13 lists these responses, which the researchers grouped into categories. State regulations, lack of training, lack of time, and lack of interest were the most frequently mentioned, but no single factor was listed by more than 27.6% of the respondents.

Table 12

Means and Standard Deviations for Question 9:
Extent to Which Conservation and Environmental Education
Are Supported Locally
Scale: 1=Strongly 2=Moderately 3=Slightly 4=Not At All

	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Means	SD's	Cases	Means	SD's	Cases	Means	SD's	Cases
By the State Board of Educ.	2.4	0.7	29	2.2	0.8	57	2.2	0.8	86
By their School Board	2.7	0.8	29	2.3	0.9	60	2.4	0.9	89
By their Superintendent	2.6	0.8	27	2.1	0.9	64	2.2	0.9	91
By their Principal	2.6	0.9	29	2.1	0.8	63	2.3	0.9	92
By Students' Parents	2.7	0.9	29	2.3	0.9	61	2.5	0.9	90
By Fellow Teachers	2.3	0.9	29	2.3	0.8	62	2.3	0.8	91

Table 13

Factors Preventing a Stronger Emphasis on
Conservation and Environmental Education in School Districts

Factors	Consortium Teachers (N=29)	Superintendent Contacts (N=70)	All Respondents (N=99)
Not Emphasized in State Regulations	5 (17.2%)	10 (14.3%)	15 (15.2%)
Lack Training or Information	8 (27.6%)	7 (10.0%)	15 (15.2%)
Lack of Time	4 (13.8%)	10 (14.3%)	14 (14.1%)
Lack Interest or Concern	8 (27.6%)	4 (5.7%)	12 (12.1%)
Lack of Money	3 (10.3%)	5 (7.1%)	8 (8.1%)
Lack of Materials	1 (3.4%)	4 (5.7%)	5 (5.1%)
Other	4 (13.8%)	6 (8.6%)	10 (10.1%)
# Identifying One or More Factors	20 (69.0%)	28 (31.1%)	48 (48.5%)

Attitudes towards Expanding the Role of Conservation and Environmental Education

Should there be a greater emphasis upon conservation and environmental education, and is there interest in further teacher education in these curricular areas? Tables 14 and 15 show a positive response to both questions.

The need for a stronger conservation and environmental education curriculum (Table 14) is rated between "moderately important" and "very important". When asked about the value of and interest in a summer workshop, 79.4% of the respondents replied that such a program would be valuable and 89.1% said that they would recommend the workshop to other educators. Approximately one-third (34.1%)

Table 14

Means and Standard Deviations for Question 8:
Importance of a Stronger Conservation and Environmental Education Curriculum
Scale: 1=Very 2=Moderately 3=Slightly 4=Not At All

	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Means	SD's	Cases	Means	SD's	Cases	Means	SD's	Cases
In their Classroom	1.4	0.6	28	1.8	0.8	56	1.6	0.7	74
In their School	1.4	0.5	29	1.8	0.8	54	1.6	0.7	73
In their District	1.5	0.6	29	1.7	0.8	61	1.6	0.7	90

Table 15

Interest in and Perceived Value of
A Summer Workshop on Conservation and Environmental Education

	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Yes	No	Undec.	Yes	No	Undec.	Yes	No	Undec.
Workshop would be Valuable	28 (96.6%)	0 (0.0%)	1 (3.4%)	49 (72.1%)	3 (4.4%)	16 (23.5%)	77 (79.4%)	3 (3.1%)	17 (17.5%)
Would Recommend Workshop to Others	27 (96.4%)	0 (0.0%)	1 (3.6%)	55 (85.9%)	2 (3.1%)	7 (10.9%)	82 (89.1%)	2 (2.2%)	8 (8.7%)
Would Attend Workshop	22 (75.9%)	2 (6.9%)	5 (17.2%)	19 (29.7%)	23 (35.9%)	22 (34.4%)	41 (44.1%)	25 (26.9%)	27 (29.6%)
Would Share Lesson at Workshop	11 (39.3%)	6 (21.4%)	11 (39.3%)	17 (31.5%)	20 (37.0%)	17 (31.5%)	28 (34.1%)	26 (31.7%)	28 (34.1%)

even indicated a willingness to share a lesson or resource at the program.

While 26.9% of the respondents said that they would not be interested in attending a conservation and environmental education workshop themselves, several who replied "no" added "not this summer" as an explanation. It is interesting, though not surprising, to see that more than twice the percentage of consortium teachers (75.9% for these teachers versus 29.7% for the superintendent contacts) indicated that they would attend the workshop themselves. Their impressions of the Appalachian Consortium's first Southern Highlands Institute for Educators are, apparently, quite favorable.

Interest in Specific Topics and Teaching Methods

An overwhelming number of conservation and environmental concepts and issues could potentially be included in a school curriculum and presented in a teacher institute. Question 13 (Tables 16 and 17) was an attempt to measure interest in 17 topics that relate to general concerns or pertain to Southern Appalachia in particular. Respondents were asked to indicate their interest in learning about a) each topic itself, and b) methods and resources for teaching each topic. The evaluation scale ranged from one to five as follows: 1 = Not at all Interested, 3 = Somewhat Interested, and 5 = Extremely Interested.

Although a complete discussion of the data in Tables 16 and 17 is beyond the scope of this project summary, some general patterns deserve mention. Only a few ratings averaged below 3.5 on the 1-to-5 scale while several were at the 4.0 level or above. Among the topics ranked highest were toxic & hazardous waste, wildlife, and environmental ethics. Endangered species & natural areas, air pollution & acid rain, and the relationship between southern Appalachian cultures and the environment also received substantial support. The two subjects attracting the least interest were coal mining (3.3) and mineral

Table 16

Means and Ranks for Question 13:
Interest in Learning about Regional Topics
(Rank 1=highest Rank 17=lowest)
(Means reported to hundredths for ranking; * = tied ranks)

Topics	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Mean	Rank	Cases	Mean	Rank	Cases	Mean	Rank	Cases
Southern Appalach. Geology & Geog.	4.07	8	29	3.47	14	60	3.66	11*	89
Natural History of Appal. Region	4.27	5	29	3.54	11	59	3.78	9	88
Princ. of Ecology	3.90	11*	29	3.34	15	59	3.52	15	88
Rel'ship b/w Econ & Env. Qual.	3.90	11*	29	3.48	12*	59	3.61	14	88
Rel'ship b/w App. Cultures & Environment	4.66	1	29	3.55	10	60	3.91	5	89
Forests & Forestry	3.93	9*	29	3.48	12*	59	3.63	13	88
Energy & Energy Resources	3.76	14	29	3.64	9	61	3.68	10	90
Water Resources & Pollution	3.90	11*	29	3.79	3*	62	3.82	7	91
Toxic & Haz'dous Wastes	4.38	3	29	3.82	1	63	4.01	1	92
Litter, Solid Wst. & Recycl'g	3.93	9*	29	3.74	7	61	3.80	8	90
Wildlife & Its Management	4.35	4	28	3.79	3*	62	3.97	3	90
Endgd. Species & Natural Areas	4.45	2	29	3.76	5	62	3.98	2	91
Coal & Relat'd Issues	3.48	17	29	3.17	17	58	3.28	17	87
Mineral Resources	3.62	15	29	3.32	16	59	3.42	16	88
Air Poll'tn & Acid Rain	4.14	7	29	3.75	6	60	3.88	6	89
Land Use & Planning	3.52	16	29	3.72	8	61	3.66	11*	90
Envt'l Ethics & Responsibility	4.20	6	29	3.82	2	62	3.95	4	91

Table 17

Means and Ranks for Question 13:
Interest in Learning Methods for Teaching Regional Topics

(Rank 1=highest Rank 17=lowest)
(Means reported to hundredths for ranking; * = tied ranks)

Topics	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Mean	Rank	Cases	Mean	Rank	Cases	Mean	Rank	Cases
Southern Appalach. Geology & Geog.	4.00	3	29	3.70	11	63	3.79	8	92
Natural History of Appal. Region	4.21	2	29	3.78	8*	63	3.91	5	92
Princ. of Ecology	3.93	10	29	3.53	15	61	3.66	14	90
Rel'ship b/w Econ. & Env. Qual.	3.97	6*	29	3.58	14	60	3.71	12	89
Rel'ship b/w App. Cultures & Environment	4.55	1	29	3.67	12	60	3.95	1	90
Forests & Forestry	3.97	6*	29	3.63	13	62	3.74	10	91
Energy & Energy Resources	3.69	13*	29	3.78	8*	60	3.75	9	89
Water Resources & Pollution	3.86	11*	29	3.95	1	61	3.92	4	90
Toxic & Haz'dous Wastes	3.97	6*	29	3.92	2*	60	3.93	2*	89
Litter, Solid Wst. & Recycl'g	3.69	13*	29	3.75	10	61	3.73	11	90
Wildlife & Its Management	3.96	9	28	3.86	5	62	3.89	6*	90
Endgd. Species & Natural Areas	4.00	3	29	3.79	7	61	3.86	7	90
Coal & Related Issues	3.41	16*	29	3.29	17	58	3.33	17	87
Mineral Resources	3.59	15	29	3.48	16	59	3.51	16	88
Air Pollution & Acid Rain	3.86	11*	29	3.90	4	61	3.89	6*	90
Land Use & Planning	3.41	16*	29	3.80	6	61	3.68	13	90
Envt'l Ethics & Responsibility	3.97	6*	29	3.92	2*	60	3.93	2*	89

resources (3.4 and 3.5). (Interest in these topics may be greater where they are of direct local concern, however.) Also receiving lower ratings were principles of ecology and the relationship between economics and environmental quality.

The final item on the questionnaire probed interest in learning general methods for conservation and environmental instruction. Table 18 shows a substantial gap between the low rating for two to five day field trips (2.5 on the 1-to-5 scale) and the other three methods which received average ratings of 3.7 or 3.8 .

Table 18

Means and Standard Deviations for Question 14:
Interest in Learning Methods and Resources for
Teaching Conservation and Environmental Education
Scale: 1=Not At All 3=Somewhat 5=Extremely

	Consortium Teachers (N=29)			Superintendent Contacts (N=70)			All Respondents (N=99)		
	Means	SD's	Cases	Means	SD's	Cases	Means	SD's	Cases
Organizing a ½ or 1 Day Field Trip	4.1	1.1	29	3.5	1.3	63	3.7	1.3	92
Organizing a 2 to 5 Day Field Trip	2.7	1.3	29	2.4	1.2	62	2.5	1.3	91
Studying Local Community Cons. & Env'tl Issues	4.2	1.0	28	3.6	1.1	63	3.8	1.1	91
Using School Site for Cons. & Env'tl Educ.	3.8	1.4	28	3.6	1.2	64	3.7	1.3	92

DISCUSSION

The purpose of this survey was to assess conservation and environmental education needs in the southern Appalachian region. Questionnaires were mailed to a total of 164 teachers and school district superintendents, and 99 (60.4%) were returned.

It is important to point out that this project was not intended to be a comprehensive, scientific survey of conservation and environmental education in southern Appalachian schools. The more modest goal of the study was to query a) teachers with whom the Appalachian Consortium has worked in the past, and b) superintendents of the region's school districts.

Since the cover letter to superintendents requested them to have an appropriate teacher or curriculum coordinator fill out the questionnaire, these respondents are almost certainly more familiar with conservation and environmental education than the average southern Appalachian educator. A bias in these results, therefore, exists but it is difficult to precisely identify the nature of that bias. It is probable that these respondents are more favorably disposed towards conservation and environmental education. However, because of this familiarity it could be argued that these individuals may be less likely to support further inservice efforts and they may be less interested in learning more about these fields themselves.

Nevertheless, a random sample was drawn from each group of educators and a substantial proportion of the questionnaires were completed and returned. The resulting data allow one to develop several generalizations about conservation and environmental education in southern Appalachian schools:

1. Conservation and environmental education are a relatively low priority in current educational practice.

2. Despite the above conclusion, teachers address a variety of topics related to conservation and the environment, and they use a variety of methods to teach the material.

3. Educators believe that a greater emphasis should be placed upon conservation and environmental education in their classrooms, schools and districts.

4. Educators also believe that a summer teacher institute on conservation and environmental education would be valuable, they would recommend it to others, and many would attend it themselves.

5. Interest in learning more about particular conservation and environmental topics and teaching methods varies, but there is some interest in virtually all topics and methods listed in the survey.

In light of these findings, it is recommended that the Appalachian Consortium and Warren Wilson College develop proposals for one or more conservation and environmental education teacher institutes in southern Appalachia.

REFERENCES

Appalachian Consortium. [1986.] Appalachian Consortium Resource Guide. Boone, North Carolina.

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Lovingood, Paul E., Jr., and Robert E. Reiman. [1985.] Emerging Patterns in the Southern Highlands. A Reference Atlas. Volume 1. Introduction. Boone, North Carolina: Appalachian Consortium Press.

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Roth, Robert E., Diane Cantrell, and Woodward Bousquet. 1980. Impact on Environmental Education. In Hammerman, William M., ed., Fifty Years of Resident Outdoor Education: 1930-1980. Its Impact on American Education. Martinsville, Indiana: American Camping Association.

APPENDIX A

CONSERVATION AND ENVIRONMENTAL EDUCATION
QUESTIONNAIRE

Note: For the actual questionnaire, the following four pages were photo-reduced by 25% and printed on a single sheet of 8½" x 14" paper, folded once.

Appalachian State University · Lees McRae College
Blue Ridge Parkway · Mars Hill College
East Tennessee State University · Mountain Regional Library
APPALACHIAN CONSORTIUM
N. C. Division of Archives & History · Warren Wilson College
Southern Highland Handicraft Guild · Western Carolina University
United States Forest Service · Western N. C. Historical Assoc

CONSERVATION AND ENVIRONMENTAL EDUCATION QUESTIONNAIRE

In conjunction with the Appalachian Consortium, Warren Wilson College is conducting a conservation and environmental education needs assessment in the Southern Appalachian region.

If significant needs are demonstrated, the Appalachian Consortium and Warren Wilson College plan to develop proposals to fund a series of conservation and environmental education teacher institutes in the region. These workshops would follow the approach and format of the Consortium's recent Appalachian Studies Teacher Institutes which have assisted teachers in incorporating Appalachian studies into their classroom activities.

We want to match our workshops to your particular needs and interests. Therefore, we need your assistance in completing the enclosed survey.

Please use the return envelope provided. In order to meet deadlines for planning the workshops, we need your response by April 4, 1986.

The return envelope has a code number to enable us to contact people who haven't returned their questionnaires by April 4th. Your individual responses will be kept confidential.

If you have any questions about the survey you may direct them to Woodward S. Bousquet at Warren Wilson College (704/298-3325). Thank you for your time and cooperation.

Sincerely,

Woodward S. Bousquet
Chair, Environmental Studies Program
Warren Wilson College

Ralph W. Jarvis
Exchange Associate
Appalachian Consortium

Conservation and Environmental Education Questionnaire

1. Please supply the following information:
   a) Number of years spent teaching: _____ b) Grades taught:_____

2. Subjects taught: ___ Social Studies ___ Science
   ___ Language Arts ___ Mathematics ___ Vocational Education

3. To what extent are topics related to conservation and environmental education currently included in your :
   a) Classroom : ___ Extensive ___ Moderate ___ Little ___ Not At All
   b) School : ___ Extensive ___ Moderate ___ Little ___ Not At All
   c) District : ___ Extensive ___ Moderate ___ Little ___ Not At All

4. How many hours per week do you provide conservation and environmental education instruction ? _____

5.In your classroom,which of the following areas of conservation and environmental education do you cover ? (Check all that apply)
   a) ___ Nature Study and Ecology
   b) ___ Conservation Methods
   c) ___ Environmental Issues
   d) ___ People's Relationship to the Environment
   e) ___ Other (specify) _____

6. Please check the method(s) you use to present this material.
   a) ___ Classroom instruction b) ___ Field trip
   c) ___ Laboratory d) ___ School site study
   e) ___ Other (specify) _____

7. Have you ever participated in a conservation or environmental education course or workshop ? ____ Yes ____ No

8. To you, how important is a stronger conservation and environmental education curriculum in your :
   a) Classroom : ___ Very ___ Moderately ___ Slightly ___ Not At All
   b) School : ___ Very ___ Moderately ___ Slightly ___ Not At All
   c) District : ___ Very ___ Moderately ___ Slightly ___ Not At All

9. To what extent are conservation and environmental education empasized and supported locally by your:

a) State board of education	__ Strongly	__ Moderately	__ Slightly	__ Not at all
b) School board	__ Strongly	__ Moderately	__ Slightly	__ Not at all
c) Superintendent	__ Strongly	__ Moderately	__ Slightly	__ Not at all
d) Principal	__ Strongly	__ Moderately	__ Slightly	__ Not at all
e) Student's parents	__ Strongly	__ Moderately	__ Slightly	__ Not at all
f) Fellow teachers	__ Strongly	__ Moderately	__ Slightly	__ Not at all

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10. If support is weak, what prevents a stronger emphasis on conservation and environmental education in your district ?

_____

_____

_____

11. Do you think that a workshop on conservation and environmental education for the Southern Appalachian region would be valuable ?

____ Yes ____ No ____ Undecided

12. If this program were offered for five days during the summer, would you:

a) Be interested in attending yourself ?

____ Yes ____ No _____ Undecided

b) Recommend it to other educators ?

____ Yes ____ No _____ Undecided

c) Share a lesson or resources at the program ?

____ Yes ____ No _____ Undecided

13. REGIONAL TOPICS Please indicate, using the scale, how interested you would be in :

	Learning about the Topic itself?					Learning some methods and resources for teaching this topic ?				
	Not at all		Somewhat		Extremely	Not at all		Somewhat		Extremely
Southern Appalachian Geology and Geography	1	2	3	4	5	1	2	3	4	5
Natural History of the Appalachian Region	1	2	3	4	5	1	2	3	4	5
Principles of Ecology	1	2	3	4	5	1	2	3	4	5
Relationships Between Economics and Environmental Quality	1	2	3	4	5	1	2	3	4	5
Relationships Between Southern Appalachian Cultures and the Environment	1	2	3	4	5	1	2	3	4	5
Forests and Forestry	1	2	3	4	5	1	2	3	4	5
Energy and Energy Resources	1	2	3	4	5	1	2	3	4	5
Water Resources and Water Pollution	1	2	3	4	5	1	2	3	4	5

(Continued on the next page)

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	Topic					Methods				
	Not at all		Somewhat		Extremely	Not at all		Somewhat		Extremely
Production and Disposal of Toxic and Hazardous Wastes	1	2	3	4	5	1	2	3	4	5
Litter, Solid Waste and Recyling	1	2	3	4	5	1	2	3	4	5
Wildlife and Wildlife Management	1	2	3	4	5	1	2	3	4	5
Endangered Species and Natural Areas	1	2	3	4	5	1	2	3	4	5
Coal Mining and Related Environmental Issues	1	2	3	4	5	1	2	3	4	5
Mineral Resources	1	2	3	4	5	1	2	3	4	5
Air Pollution and Acid Rain	1	2	3	4	5	1	2	3	4	5
Land Use and Planning	1	2	3	4	5	1	2	3	4	5
Environmental Ethics and Responsibility	1	2	3	4	5	1	2	3	4	5

14. GENERAL METHODS:

Please indicate, using the scale, how interested you would be in workshops dealing with the methods and resources for :

Organizing a 1/2 or 1 Day Field Trip	1	2	3	4	5
Organizing a 2 to 5 Day Field Trip	1	2	3	4	5
Studying Conservation and Environmental Issues in your Local Community	1	2	3	4	5
Using your School Site for Conservation and Environmental Education	1	2	3	4	5

15. If you would be interested in further information about this project please provide the information below.

Name:_____

Address: _____

_____

_____

Telephone: Office _____ **Home**_____

Please use the back of this page for additional comments, suggestions and recommendations for persons to contact.

Thank you for your assistance. Please return this questionnaire in the envelope provided by APRIL 4, 1986. Return to:

Woodward S. Bousquet, Warren Wilson College
701 Warren Wilson College Road
Swannanoa, North Carolina
28778

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APPENDIX B

LETTERS

1. Cover Letter to Superintendents
2. Follow-up Letter to Superintendents
3. Follow-up letter to Consortium Teachers

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Appalachian State University
Blue Ridge Parkway
East Tennessee State University
Lees-McRae College
Mars Hill College
Mountain Regional Library
N. C. Division of Archives & History
Southern Highland Handicraft Guild
United States Forest Service
Warren Wilson College
Western Carolina University
Western N. C. Historical Assoc

APPALACHIAN CONSORTIUM

March 19, 1986

Dear Superintendent:

In conjunction with the Appalachian Consortium, Warren Wilson College is conducting an educational needs assessment in the Southern Appalachian region. Our particular interests are in the areas of conservation and environmental education.

If significant needs are demonstrated, the Appalachian Consortium and Warren Wilson College plan to develop a series of teacher institutes offered in this region during the summer. These five-day workshops would follow the approach and format of the Consortium's recent Appalachian Studies Teacher Institutes which have assisted teachers in incorporating Appalachian studies into their classroom activities.

Could you assist us by giving the enclosed questionnaire and return envelope to an appropriate teacher or curriculum coordinator?

In order to meet deadlines for planning the workshops, we need responses by April 4, 1986.

Thank you for your time and cooperation.

Sincerely,

Woodward S. Bousquet
Chair, Environmental Studies Program
Warren Wilson College

Ralph W. Jarvis
Exchange Associate
Appalachian Consortium

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Mars Hill College
Mountain Regional Library
Warren Wilson College
Western Carolina University
Western N. C. Historical Assoc

APPALACHIAN CONSORTIUM

May 12, 1986

Dear Superintendent:

Six weeks ago we mailed you a Conservation and Environmental Education Questionnaire to give to a teacher or curriculum coordinator to complete and return.

Our records indicate that we have not yet received a response. We would still appreciate your assistance.

Could you give the enclosed materials to an appropriate teacher or curriculum coordinator? A duplicate questionnaire and return envelope are provided in case the originals have been misplaced.

In order to meet our planning deadlines, we need a response no later than May 24, 1986.

Sincerely,

Woodward S. Bousquet

Woodward S. Bousquet
Chair, Environmental Studies Program
Warren Wilson College

Ralph W. Jarvis

Ralph W. Jarvis
Exchange Associate
Appalachian Consortium

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East Tennessee State University · Mountain Regional Library
APPALACHIAN CONSORTIUM
N C Division of Archives & History · Warren Wilson College
Southern Highland Handicraft Guild · Western Carolina University
United States Forest Service · Western N C Historical Assoc

May 12, 1986

Dear Teacher:

Six weeks ago we mailed you a Conservation and Environmental Education Questionnaire to complete and return.

Our records indicate that we have not yet received your response. We would still appreciate your assistance.

A duplicate questionnaire and return envelope are enclosed in case you have misplaced the originals.

In order to meet our planning deadlines, we need your response no later than May 24, 1986.

Thank you for your time and cooperation.

Sincerely,

Woodward S. Bousquet
Chair, Environmental Studies Program
Warren Wilson College

Ralph W. Jarvis
Exchange Associate
Appalachian Consortium

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